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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,174	03/12/2002	Inge Johansen	2001-1826A	8526

513 7590 11/14/2005

WENDEROTH, LIND & PONACK, L.L.P.
2033 K STREET N. W.
SUITE 800
WASHINGTON, DC 20006-1021

EXAMINER

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 11/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,174

Applicant(s)

JOHANSEN ET AL.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-19,21,22 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-19,21,22 and 25-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 11, 17, and 25-30 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9, 11, 12, 14, 16, and 17 of copending Application No. 10/009,690 in view of Foye (US 3,556,197), and further in view of Tarmann et al. (US 2,690,600).

The claims share identical elements (steel mold housing having a plurality of channels, permeable wall material, at least one annular slit/nozzle, a mold housing comprising first and second parts, and a thermally insulating annular plate), with the exception of the restricting elements between the permeable wall and an interior wall of the mold housing. Although independent claims 11 and 17 of the present application no longer include the additional structural limitation "an insulating plate...", as set forth in independent claims 9 and 14 of 10/009,690, it would have been obvious to one of

ordinary skill in the art to exclude this additional structural limitation, as open-ended “comprising” language exists in the present application.

However, Foye discloses an apparatus (horizontal continuous casting of round billets 13) for lubricating a molten metal mold, in which the apparatus includes a reservoir 10 of molten metal, mold assembly 8, mold section 12, plate element 11, annular gasket 20, a lubricating device 23 having upper and lower (sectors) chambers 18,27 (of the annuli) and adjustable valves 17,26 to control the circumferential supply of oil around the mold in the region of the plate element 11, and secondary water sprays (abstract; column 1, lines 12-59; column 2, lines 36-71; column 3, lines 1-75; column 4, lines 1-14 and 34-41; and Figures 1-16). In another embodiment, annular gasket 35 has six radial slots 36 (channels that form and divide a plurality of sectors) in which the flow is controlled by valves (column 4, lines 72-75; column 5, lines 1-19 and 56-58; and Figures 6-8). Although Foye discloses a plurality of valves that would “differentiate” the supply of oil around the circumference of the mold cavity for more uniform lubrication/cooling, Foye does not specifically disclose a plurality of plugs or similar restriction members that “differentiate” the supply of oil around the mold cavity.

However, Tarmann et al. disclose a device for introducing a lubricant into a mold for continuous casting of metals, including iron and steel, in which the device includes a ring groove 2 that includes inserted pieces 3 (plugs/restrictions) for subdividing the ring groove into sections 4 (segments), such that the supply of lubricant can be “differentiated” around sections 4 of the groove 2 via lubricant admission channels 5, for

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the purpose of independently providing lubricant uniformly into the ring groove segments 4 (column 1, lines 1-55; column 2, lines 1-21; and Figures 1 and 2).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the horizontal continuous casting apparatus of copending Application No. 10/009,690, by adding the restricting elements (plurality of valves) between the permeable wall and an interior wall of the mold housing in the horizontal continuous casting apparatus of Foye, in order to "differentiate" the supply of oil/gas/coolant around the circumference of the mold cavity in controlled amounts and pressures at predetermined locations (Foye; abstract; column 1, lines 12-18 and 41-59; column 3, lines 27-42 and 66-75; column 4, lines 1-14 and 72-75; and column 5, lines 1-19 and 56-58), and by using the plurality of plugs or similar restriction members that "differentiate" the supply of oil around the mold cavity, as disclosed by Tarmann et al., in order to independently provide lubricant uniformly into the ring groove segments (Tarmann et al.; column 1, lines 26-55; and column 2, lines 1-21).

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 11-19, 21, 22, and 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kittilsen et al. (US 5,915,455) in view of Foye (US 3,556,197), and further in view of Tarmann et al. (US 2,690,600).

Kittilsen et al. disclose an apparatus for horizontal casting of light metals, in which the apparatus includes a tundish 3 with a first insulating plate 29 for supplying molten metal M that flows into a steel pipe 28 and into a mold 10, such that the mold 10 has multiple housings (including a first mold housing having a plurality of channels); a second mold housing 26; a thermally insulating annular plate (structures with 21 and 23 written thereon) arranged against the first mold housing; an oil ring 19 with oil supply channels 20 to lubricate the mold; a transition ring of insulating porous refractory material 21 to provide heat transfer via oil (from oil ring 19 and oil supply channels 20) and gas from gas supply channels 22 to the interior wall of the mold housing (in the vicinity of metal solidification region 25 and to the left of mold depth parameters L1 and

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L2); and separate primary and secondary cooling water circuits (11,12) for flow of coolant around the circumference of the mold cavity (abstract; column 1, lines 55-67; column 2, lines 1-44; column 3, lines 7-67; column 4, lines 1-67; column 5, lines 1-3; and Figures 1 and 2). One of ordinary skill in the art would have recognized that (in addition to the conventional types of mold material -- e.g. aluminum, copper, steel etc.), although the primary cooling is not specifically controlled by valve means, the removal and/or exchanges of several molds having various geometries (having dimensions with protrusions, leading to variance in the coolant flow rates through the annular slits/nozzles) were made (easily replaceable) by Kittilsen et al. (in Tables I and II), for the purpose of producing ingots at adequate casting speed with good surface quality (Kittilsen et al.; column 3, lines 50-67; column 4, lines 1-27; and column 5, lines 20-41). Kittilsen et al. do not specifically disclose the restricting elements between the permeable wall and an interior wall of the mold housing.

However, Foye discloses an apparatus (horizontal continuous casting of round billets 13) for lubricating a molten metal mold, in which the apparatus includes a reservoir 10 of molten metal, mold assembly 8, mold section 12, plate element 11, annular gasket 20, a lubricating device 23 having upper and lower (sectors) chambers 18,27 (of the annuli) and adjustable valves 17,26 to control the circumferential supply of oil around the mold in the region of the plate element 11, and secondary water sprays (abstract; column 1, lines 12-59; column 2, lines 36-71; column 3, lines 1-75; column 4, lines 1-14 and 34-41; and Figures 1-16). In another embodiment, annular gasket 35

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has six radial slots 36 (channels) in which the flow is controlled by valves (column 4, lines 72-75; column 5, lines 1-19 and 56-58; and Figures 6-8).

Although Foye discloses a plurality of valves that would “differentiate” the supply of oil around the circumference of the mold cavity for more uniform lubrication/cooling, Foye does not specifically disclose a plurality of plugs or similar restriction members that “differentiate” the supply of oil around the mold cavity.

However, Tarmann et al. disclose a device for introducing a lubricant into a mold for continuous casting of metals, including iron and steel, in which the device includes a ring groove 2 that includes inserted pieces 3 (plugs/restrictions) for subdividing the ring groove into sections 4 (segments), such that the supply of lubricant can be “differentiated” around sections 4 of the groove 2 via lubricant admission channels 5, for the purpose of independently providing lubricant uniformly into the ring groove segments 4 (column 1, lines 1-55; column 2, lines 1-21; and Figures 1 and 2).

It would have been obvious to one of ordinary skill in the art at the time the applicants’ invention was made to modify the apparatus for horizontal casting of light metals, as disclosed by Kittilsen et al., by adding the restricting elements between the permeable wall and an interior wall of the mold housing in the horizontal continuous casting apparatus of Foye, in order to “differentiate” the supply of oil/gas/coolant around the circumference of the mold cavity in controlled amounts and pressures at predetermined locations (Foye; abstract; column 1, lines 12-18 and 41-59; column 3, lines 27-42 and 66-75; column 4, lines 1-14 and 72-75; and column 5, lines 1-19 and 56-58), and by using the plurality of plugs or similar restriction members that

"differentiate" the supply of oil around the mold cavity, as disclosed by Tarmann et al., in order to independently provide lubricant uniformly into the ring groove segments (Tarmann et al.; column 1, lines 26-55; and column 2, lines 1-21).

Response to Arguments

6. The examiner acknowledges the applicants' response received by the USPTO on October 7, 2005. The 35 USC 103(a) rejections based on the Naess, Jr. et al. reference (see paragraph 6 of the prior Office Action) have been overcome by the applicants' remarks/arguments. However, double patenting and 35 USC 103(a) rejections remain (see paragraphs 2 and 5). Claims 11-19, 21, 22, and 25-30 remain under consideration in the application.

7. Applicants' arguments filed October 7, 2005 have been fully considered but they are not persuasive.

With regard to the applicants' remarks/arguments on pages 7-11 of the amendment (addressing the double patenting and 35 USC 103(a) rejections in paragraphs 2 and 5 above), the examiner addresses the following issues (the applicants are especially referred to the newly underlined sections, as these sections apply to new arguments):

On page 7, last paragraph, and page 8, 1st paragraph, whether or not the gas provides any lubricating effect in the mold continues to be not pertinent to the claimed subject matter, as the gas does not further limit the structure of these apparatus claims.

In the last two paragraphs on page 8, the restricting elements (e.g. valves) between the permeable wall and an interior wall of the mold housing enable the supply of oil (also applicable to other fluids including gas, water, other coolants etc.) to be controlled or “differentiated” around the circumference of the mold cavity. As a result, the casting environment disclosed by Kittilsen et al. includes separate supplies of oil and gas, although lacking the means to specifically control flows of oil and gas. Foye includes such flow control means (valves) that would readily be used on the separate supplies of oil and gas taught by Kittilsen et al., resulting in controlled (“differentiated”) supplies. The Tarmann et al. reference remedies the lack of specificity set forth by Foye (valves), since Tarmann et al. disclose a plurality of plugs or similar restriction members that “differentiate” the supply of oil around the mold cavity.

In the 1st paragraph on page 9, the annuli are defined by a lubricating device 23 having upper and lower (sectors) chambers 18,27 (of the annuli) and adjustable valves 17,26 to control the circumferential supply of oil around the mold in the region of the plate element 11.

On pages 9 and 10 of the remarks/arguments, restricting elements (e.g. valves) of Foye enable the mold housing to form a “plurality of sectors”. Since the applicants specifically claim a “plurality of sectors” in a physical (structural) sense in the form of “restriction members” and “a plurality of plugs”, as set forth in independent claims 11 and 17, respectively, (even though the valves of Foye are deemed to divide the mold into a “plurality of sectors”), the Tarmann et al. reference provides the structural details and motivation for using the “restriction members” and “a plurality of plugs”.

Furthermore, the "restriction members" and "a plurality of plugs" provide the capability of allowing the supply of oil to be "differentiated" around the mold cavity.

On page 11, 3rd full paragraph, although the Foye and Tarmann et al. references are incorporated into the obviousness-type double patenting rejections along with 10/009,690, the applicants' statement of "modified a modifying reference" does not make the double patenting rejections any less or non-obvious, as combinations of three (or more) references are commonly made in rejections under 35 USC 103(a), as in this application.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns 11/10/05*
Primary Examiner
Art Unit 1725

KPK
kpk
November 10, 2005